INDEX TO AUTHORS

A

ABELES, A. L. Structure-activity relationships of several cardiotonic steroids with respect to inhibition of ion transport in frog muscle, 268

ADELMAN, WILLIAM J., JR., and PALTI, YORAM. The effects of external potassium and long duration voltage conditioning on the amplitude of sodium currents in the giant axon of the squid, *Loligo pealei*, 589

AKIYAMA, TOYOHIRO. See WATANABE, OBARA, and AKIYAMA, 212

ALLEN, R. D. See GAYTON, ALLEN, and HINKE 433

ALVING, BARBARA O. Differences between pacemaker and nonpacemaker neurons of *Aplysia* on voltage clamping, 512

ANDERSON, NELS C., JR. Voltage-clamp studies on uterine smooth muscle, 145

ARMSTRONG, CLAY M. Inactivation of the potassium conductance and related phenomena caused by quaternary ammonium ion injection in squid axons, 553

ATWATER, ILLANI. See ROJAS, TAYLOR, ATWATER, and BEZANILLA, 532

B

BARLOW, ROBERT B., JR. Inhibitory fields in the *Limulus* lateral eye, 383

BARR, C. E. See SPEAR, BARR, and BARR, 397

BARR, JUNE K. See SPEAR, BARR, and BARR, 397

BEAUGÉ, L. A. See SJODIN and BEAUGÉ, 664

BEZANILLA, FRANCISCO. See ROJAS, TAYLOR, ATWATER, and BEZANILLA, 532

BIGGLEY, W. H., SWIFT, E., BUCHANAN, R. J., and SELIGER, H. H. Stimulable and spontaneous bioluminescence in the marine dinoflagellates, *Pyrodinium bahamense*, *Gonyaulax polyedra*, and *Pyrocystis lunula*, 96

BINSTOCK, L., and GOLDMAN, L. Current- and voltage-clamped studies on *Myxicola* giant axons. Effect of tetrodotoxin, 730

—. See GOLDMAN and BINSTOCK, 741, 755

BRIGGS, F. NORMAN. See FUCHS, GERTZ, and BRIGGS, 286

BROWN, JOEL E. See NOLTE and BROWN, 636

BUCHANAN, R. J. See BIGGLEY, SWIFT, BUCHANAN, and SELIGER, 96

C

CHANGEUX, JEAN-PIERRE, PODLESKI, THOMAS, and MEUNIER, JEAN-CLAUDE. On some structural analogies between acetylcholinesterase and the macromolecular receptor of acetylcholine, 225 s

CLARK, A. W., MILLECCHIA, RONALD, and MAURO, ALEXANDER. The ventral photoreceptor cells of *Limulus*. I. The microanatomy, 289

CORRADINO, R. A. See WASSERMAN, CORRADINO, and TAYLOR, 114 s

CRIDDLE, R. S., PALTAUF, F., PLATTNER, H., and SCHATZ, G. Identification of mitochondrial inner membranes in anaerobically grown baker's yeast, 57 s

D

DEVOE, ROBERT D., SMALL, RALPH J. W., and ZVARGULIS, JANIS E. Spectral sensitivities of wolf spider eyes, 1

DICK, D. A. T., DICK, E. G., and TOSTESON, D. C. Inhibition of adenosine triphosphatase in sheep red cell membranes by oxidized glutathione, 123

DICK, E. G. See DICK, DICK, and TOSTESON, 123

DIPOLO, R. See GARY-BOBO, DIPOLO, and SOLOMON, 369

DØVING, KJELL B., and MILLER, WILLIAM H. Function of insect compound eyes containing crystalline tracts, 250

E

ENDO, A. See ROTHFIELD, WEISER, and ENDO, 27 s

INDEX TO AUTHORS

A

ABELES, A. L. Structure-activity relationships of several cardiotonic steroids with respect to inhibition of ion transport in frog muscle, 268

ADELMAN, WILLIAM J., JR., and PALTI, YORAM. The effects of external potassium and long duration voltage conditioning on the amplitude of sodium currents in the giant axon of the squid, *Loligo pealei*, 589

AKIYAMA, TOYOHIRO. See WATANABE, OBARA, and AKIYAMA, 212

ALLEN, R. D. See GAYTON, ALLEN, and HINKE 433

ALVING, BARBARA O. Differences between pacemaker and nonpacemaker neurons of *Aplysia* on voltage clamping, 512

ANDERSON, NELS C., JR. Voltage-clamp studies on uterine smooth muscle, 145

ARMSTRONG, CLAY M. Inactivation of the potassium conductance and related phenomena caused by quaternary ammonium ion injection in squid axons, 553

ATWATER, ILLANI. See ROJAS, TAYLOR, ATWATER, and BEZANILLA, 532

B

BARLOW, ROBERT B., JR. Inhibitory fields in the *Limulus* lateral eye, 383

BARR, C. E. See SPEAR, BARR, and BARR, 397

BARR, JUNE K. See SPEAR, BARR, and BARR, 397

BEAUGÉ, L. A. See SJODIN and BEAUGÉ, 664

BEZANILLA, FRANCISCO. See ROJAS, TAYLOR, ATWATER, and BEZANILLA, 532

BIGGLEY, W. H., SWIFT, E., BUCHANAN, R. J., and SELIGER, H. H. Stimulable and spontaneous bioluminescence in the marine dinoflagellates, *Pyrodinium bahamense*, *Gonyaulax polyedra*, and *Pyrocystis lunula*, 96

BINSTOCK, L., and GOLDMAN, L. Current- and voltage-clamped studies on *Myxicola* giant axons. Effect of tetrodotoxin, 730

—. See GOLDMAN and BINSTOCK, 741, 755

BRIGGS, F. NORMAN. See FUCHS, GERTZ, and BRIGGS, 286

BROWN, JOEL E. See NOLTE and BROWN, 636

BUCHANAN, R. J. See BIGGLEY, SWIFT, BUCHANAN, and SELIGER, 96

C

CHANGEUX, JEAN-PIERRE, PODLESKI, THOMAS, and MEUNIER, JEAN-CLAUDE. On some structural analogies between acetylcholinesterase and the macromolecular receptor of acetylcholine, 225 s

CLARK, A. W., MILLECCHIA, RONALD, and MAURO, ALEXANDER. The ventral photoreceptor cells of *Limulus*. I. The microanatomy, 289

CORRADINO, R. A. See WASSERMAN, CORRADINO, and TAYLOR, 114 s

CRIDDLE, R. S., PALTAUF, F., PLATTNER, H., and SCHATZ, G. Identification of mitochondrial inner membranes in anaerobically grown baker's yeast, 57 s

D

DEVOE, ROBERT D., SMALL, RALPH J. W., and ZVARGULIS, JANIS E. Spectral sensitivities of wolf spider eyes, 1

DICK, D. A. T., DICK, E. G., and TOSTESON, D. C. Inhibition of adenosine triphosphatase in sheep red cell membranes by oxidized glutathione, 123

DICK, E. G. See DICK, DICK, and TOSTESON, 123

DIPOLO, R. See GARY-BOBO, DIPOLO, and SOLOMON, 369

DØVING, KJELL B., and MILLER, WILLIAM H. Function of insect compound eyes containing crystalline tracts, 250

E

ENDO, A. See ROTHFIELD, WEISER, and ENDO, 27 s

F

FAIRBANKS, MICHAEL B., HOFFERT, J. RUSSELL, and FROMM, PAUL O. The dependence of the oxygen-concentrating mechanism of the teleost eye (*Salmo gairdneri*) on the enzyme carbonic anhydrase, 203

FERNÁNDEZ, HECTOR R. See WATERMAN, FERNÁNDEZ, and GOLDSMITH, 415

FINCH, CALEB E., FOSTER, JEFFREY R., and MIRSKY, ALFRED E. Ageing and the regulation of cell activities during exposure to cold, 690

—, HUBERMAN, HARRIS S., and MIRSKY, ALFRED E. Regulation of liver tyrosine aminotransferase by endogenous factors in the mouse, 675

FORTE, JOHN G., LIMLOMWONGSE, LIANGCHAI, and KASBEKAR, DINKAR K. Ion transport and the development of hydrogen ion secretion in the stomach of the metamorphosing bullfrog tadpole, 76

FOSTER, JEFFREY R. See FINCH, FOSTER, and MIRSKY, 690

FROMM, PAUL O. See FAIRBANKS, HOFFERT, and FROMM, 203

FUCHS, FRANKLIN, GERTZ, EDWARD W., and BRIGGS, F. NORMAN. The positive and negative inotropic effects of quinidine, 286

G

GARY-BOBO, C. M., DIPOLO, R., and SOLOMON, A. K. Role of hydrogen-bonding in nonelectrolyte diffusion through dense artificial membranes, 369

GAYTON, D. C., ALLEN, R. D., and HINKE, J. A. M. The intracellular concentration and activity of sodium in giant barnacle muscle fibers, 433

GERTZ, EDWARD W. See FUCHS, GERTZ, and BRIGGS, 286

GLYNN, I. M., and LEW, V. L. Affinities or apparent affinities of the transport adenosine triphosphatase system, 289 s

GOLDMAN, L., and BINSTOCK, L. Current separations in *Myxicola* giant axons, 741

— and —. Leak current rectification in *Myxicola* giant axons. Constant field and constant conductance components, 755

—. See BINSTOCK and GOLDMAN, 730

GOLDSMITH, TIMOTHY H. See WATERMAN, FERNÁNDEZ, and GOLDSMITH, 415

GOLDSTEIN, D. A. See RAPOPORT, PEACHEY, and GOLDSTEIN, 166

GORDON, EDWIN E., and DE HARTOG, MARIA. The relationship between cell membrane potassium ion transport and glycolysis. The effect of ethacrynic acid, 650

GRUNDFEST, HARRY. See MOTOKIZAWA, REUBEN, and GRUNDFEST, 437

H

DE HARTOG, MARIA. See GORDON and DE HARTOG, 650

HEPPEL, LEON A. The effect of osmotic shock on release of bacterial proteins and on active transport, 95 s

HINKE, J. A. M. See GAYTON, ALLEN, and HINKE, 433

HOFFERT, J. RUSSELL. See FAIRBANKS, HOFFERT, and FROMM, 203

HOFFMAN, BRIAN FRANCIS. See PAES DE CARVALHO, HOFFMAN, and DE PAULA CARVALHO, 607

HOFFMAN, JOSEPH F. The interaction between tritiated ouabain and the Na-K pump in red blood cells, 343 s

HOKIN, LOWELL E. On the molecular characterization of the sodium-potassium transport adenosine triphosphatase, 327 s

HUBERMAN, HARRIS S. See FINCH, HUBERMAN, and MIRSKY, 675

HWANG, KUO HWA. See KLAHR, SHAW, HWANG, and MILLER, 479

J

JANICK, JOHN J. See RIKMENSPOEL, SINTON, and JANICK, 782

K

KAFKA, MARIAN S., and PAK, CHARLES Y. C. Effects of polypeptide and protein hormones on lipid monolayers. I. Effect of insulin and parathyroid hormone on monomolecular films of monooctadecyl phosphate and stearic acid, 134

KARLIN, ARTHUR. Chemical modification of the active site of the acetylcholine receptor, 245 s

KASBEKAR, DINKAR K. See FORTE, LIMLOMWONGSE, and KASBEKAR, 76

KATZMAN, ROBERT, LEHRER, GERARD M., and WILSON, CLARENCE E. Sodium and potassium distribution in puffer fish supramedullary nerve cell bodies, 232

KENNEDY, BARBARA L. Quinidine effects on heart muscle. Positive and negative inotropy in relation to depression of the cardiac sarcotubular calcium pump, 285
KENNEDY, EUGENE P. Studies on the lactose transport system in *Escherichia coli*, 91 s
KLAHR, SAULO, SHAW, ALLEN B., HWANG, KUO HWA, and MILLER, C. LINDSEY. Sodium transport in turtle erythrocytes. Apparent stimulation of exchange diffusion by anaerobiosis, 479
KLEEMAN, C. R. See VILLAMIL and KLEEMAN, 576
KUME, S. See POST, KUME, TOBIN, ORCUTT, and SEN, 306 s

L

LEE, KWANG SOO, and SHIN, BAK CHANG. Studies on the active transport of calcium in human red cells, 713
LEHRER, GERARD M. See KATZMAN, LEHRER, and WILSON, 232
LEW, V. L. See GLYNN and LEW, 289 s
LIMLOMWONGSE, LIANGCHAI. See FORTE, LIMLOMWONGSE, and KASBEKAR, 76
LITTLE, GERALD R., and SLEATOR, WILLIAM W. Calcium exchange and contraction strength of guinea pig atrium in normal and hypertonic media, 494

M

MARCHESI, V. T. See STEERS and MARCHESI, 65 s
MAURO, ALEXANDER. See CLARK, MILLECCHIA, and MAURO, 289
—. See MILLECCHIA and MAURO, 310, 331
MAUTNER, HENRY G. Isologous oxygen, sulfur, and selenium compounds as probes of acetylcholine receptors, 271 s
MCCONNELL, HARDEN M. Spin-labeled membranes, 277 s
MEUNIER, JEAN-CLAUDE. See CHANGEUX, PODLESKI, and MEUNIER, 225 s
MILLECCHIA, RONALD, and MAURO, ALEXANDER. The ventral photoreceptor cells of *Limulus*. II. The basic photoresponse, 310
— and —. III. A voltage-clamp study, 331
—. See CLARK, MILLECCHIA, and MAURO, 289
MILLER, C. LINDSEY. See KLAHR, SHAW, HWANG, and MILLER, 479
MILLER, WILLIAM H. See DØVING and MILLER, 250
MIRSKY, ALFRED E. See FINCH, FOSTER, and MIRSKY, 690
—. See FINCH, HUBERMAN, and MIRSKY, 675
MOORE, L. E. Anion permeability of frog skeletal muscle, 33
MOTOKIZAWA, FUMIAKI, REUBEN, JOHN P., and GRUNDFEST, HARRY. Ionic permeability of the inhibitory postsynaptic membrane of lobster muscle fibers, 437

N

NACHMANSOHN, DAVID. Proteins of excitable membranes, 187 s
NOLTE, JOHN, and BROWN, JOEL E. The spectral sensitivities of single cells in the median ocellus of *Limulus*, 636

O

OBARA, SHOSAKU. See WATANABE, OBARA, and AKIYAMA, 212
ORCUTT, B. See POST, KUME, TOBIN, ORCUTT, and SEN, 306 s

P

PAES DE CARVALHO, ANTONIO, HOFFMAN, BRIAN FRANCIS, and DE PAULA CARVALHO, MARILENE. Two components of the cardiac action potential. I. Voltage-time course and the effect of acetylcholine on atrial and nodal cells of the rabbit heart, 607
PAK, CHARLES Y. C. See KAFKA and PAK, 134
PALTAUF, F. See CRIDDLE, PALTAUF, PLATTNER, and SCHATZ, 57 s
PALTI, YORAM. See ADELMAN and PALTI, 589
DE PAULA CARVALHO, MARILENE. See PAES DE CARVALHO, HOFFMAN, and DE PAULA CARVALHO, 607
PEACHEY, L. D. See RAPOPORT, PEACHEY, and GOLDSTEIN, 166
PLATTNER, H. See CRIDDLE, PALTAUF, PLATTNER, and SCHATZ, 57 s
PODLESKI, THOMAS. See CHANGEUX, PODLESKI, and MEUNIER, 225 s
POST, R. L., KUME, S., TOBIN, T., ORCUTT, B., and SEN, A. K. Flexibility of an active center in sodium plus potassium adenosine triphosphatase, 306 s
PREISER, HANNA. See TAYLOR, PREISER, and SANDOW, 352
PRICE, THOMAS. See ROGUS, PRICE, and ZIERLER, 188

R

RACKER, EFRAIM. Resolution and reconstitution of a mammalian membrane, 38 s

RAPOPORT, STANLEY I. A fixed charge model of the transverse tubular system of frog sartorius, 178

—, PEACHEY, L. D., and GOLDSTEIN, D. A. Swelling of the transverse tubular system in frog sartorius, 166

REUBEN, JOHN P. See MOTOKIZAWA, REUBEN, and GRUNDFEST, 437

RIKMENSPOEL, ROBERT, SINTON, SANDRA, and JANICK, JOHN J. Energy conversion in bull sperm flagella, 782

ROGUS, ELLEN, PRICE, THOMAS, and ZIERLER, KENNETH L. Sodium plus potassium-activated, ouabain-inhibited adenosine triphosphatase from a fraction of rat skeletal muscle, and lack of insulin effect on it, 188

ROJAS, EDUARDO, TAYLOR, ROBERT E., ATWATER, ILLANI, and BEZANILLA, FRANCISCO. Analysis of the effects of calcium or magnesium on voltage-clamp currents in perfused squid axons bathed in solutions of high potassium, 532

ROSEMAN, SAUL. The transport of carbohydrates by a bacterial phosphotransferase system, 138 s

ROTHFIELD, L., WEISER, M., and ENDO, A. Dissociation and reassociation of bacterial membrane components, 27 s

S

SAKAMOTO, YASUZI. Membrane characteristics of the canine papillary muscle fiber, 765

SANDOW, ALEXANDER. See TAYLOR, PREISER, and SANDOW, 352

SCHATZ, G. See CRIDDLE, PALTAUF, PLATTNER, and SCHATZ, 57 s

SELIGER, H. H. See BIGGLEY, SWIFT, BUCHANAN, and SELIGER, 96

SEN, A. K. See POST, KUME, TOBIN, ORCUTT, and SEN, 306 s

SHAW, ALLEN B. See KLAHR, SHAW, HWANG, and MILLER, 479

SHIN, BAK CHANG. See LEE and SHIN, 713

SILMAN, ISRAEL. Action on the electroplax of antibiotics affecting membrane permeability, 265 s

—. Microenvironmental effects on enzyme activity, 50 s

SINTON, SANDRA. See RIKMENSPOEL, SINTON, and JANICK, 782

SJODIN, R. A., and BEAUGÉ, L. A. The influence of potassium- and sodium-free solutions on sodium efflux from squid giant axons, 664

SLEATOR, WILLIAM W. See LITTLE and SLEATOR, 494

SMALL, RALPH J. W. See DEVOE, SMALL, and ZVARGULIS, 1

SOLOMON, A. K. See GARY-BOBO, DIPOLO, and SOLOMON, 369

SPEAR, DONALD G., BARR, JUNE K., and BARR, C. E. Localization of hydrogen ion and chloride ion fluxes in *Nitella*, 397

STEERS, E., and MARCHESI, V. T. Studies on a protein component of guinea pig erythrocyte membranes, 65 s

STEIN, W. D. Intraprotein interactions across a fluid membrane as a model for biological transport, 81 s

STEPHENSON, ELIZABETH W. Sodium flux in the smooth muscle of frog stomach, 53

SWIFT, E. See BIGGLEY, SWIFT, BUCHANAN, and SELIGER, 96

T

TAYLOR, A. N. See WASSERMAN, CORRADINO, and TAYLOR, 114 s

TAYLOR, ROBERT E. See ROJAS, TAYLOR, ATWATER, and BEZANILLA, 532

TAYLOR, STUART R., PREISER, HANNA, and SANDOW, ALEXANDER. Mechanical threshold as a factor in excitation-contraction coupling, 352

TOBIN, T. See POST, KUME, TOBIN, ORCUTT, and SEN, 306 s

TOSTESON, D. C. See DICK, DICK, and TOSTESON, 123

V

VILLAMIL, M. F., and KLEEMAN, C. R. The effect of ouabain and external potassium on the ion transport of rabbit red cells, 576

W

WALLACH, DONALD F. H. Membrane lipids and the conformations of membrane proteins, 3 s

WALLIN, B. GUNNAR. Water permeability in resting and stimulated crayfish nerve, 462

WASSERMAN, R. H., CORRADINO, R. A., and TAYLOR, A. N. Binding proteins from animals with possible transport function, 114 s

WATANABE, AKIRA, OBARA, SHOSAKU, and AKIYAMA, TOYOHIRO. Acceleratory synapses on pacemaker neurons in the heart ganglion of a stomatopod, *Squilla oratoria*, 212

WATERMAN, TALBOT H., FERNÁNDEZ, HECTOR R., and GOLDSMITH, TIMOTHY H. Dichroism of photosensitive pigment in rhabdoms of the crayfish *Orconectes*, 415

WEISER, M. See ROTHFIELD, WEISER, and ENDO, 27 s

WILSON, CLARENCE E. See KATZMAN, LEHRER, and WILSON, 232

Z

ZIERLER, KENNETH L. See ROGUS, PRICE, and ZIERLER, 188

ZVARGULIS, JANIS E. See DEVOE, SMALL, and ZVARGULIS, 1

INDEX TO SUBJECTS

A

Acetylcholine, effect on atrial and nodal cells of rabbit heart and voltage-time course, 607
—, macromolecular receptor of, and acetylcholinesterase, structural analogies between, 225 s
— receptor, chemical modification of active site of, 245 s
— receptors, isologous oxygen, sulfur, and selenium compounds as probes of, 271 s
Acetylcholinesterase and macromolecular receptor of acetylcholine, structural analogies between, 225 s
Acid, ethacrynic, effect on relationship between cell membrane potassium ion transport and glycolysis, 650
—, stearic, and monooctadecyl phosphate, monomolecular films of, effect of insulin and parathyroid hormone on, 134
Adenosine triphosphatase in sheep red cell membranes, inhibition by oxidized glutathione, 123
— triphosphatase, sodium plus potassium, flexibility of active center in, 306 s
— triphosphatase, sodium plus potassium-activated, ouabain-inhibited, from rat skeletal muscle fraction, lack of insulin effect on, 188
— triphosphatase, sodium-potassium transport, molecular characterization, 327 s
— triphosphatase system, transport, affinities or apparent affinities of, 289 s
Ageing and regulation of cell activities during exposure to cold, 690
Aminotransferase, tyrosine, liver, regulation by endogenous factors in mouse, 675
Ammonium ion, quaternary, injection in squid axons, inactivation of potassium conductance and related phenomena caused by, 553
Anaerobically grown baker's yeast, identification of mitochondrial inner membranes in, 57 s
Anaerobiosis, sodium transport in turtle erythrocytes, apparent stimulation of exchange diffusion by, 479
Anatomy, micro-, of ventral photoreceptor *Limulus* cells, 289
Anhydrase, carbonic, enzyme, dependence of oxygen-concentrating mechanism of teleost eye, *Salmo gairdneri*, on, 203
Animals, binding proteins with possible transport function from, 114 s
Antibiotics affecting membrane permeability, action on electroplax, 265 s
Aplysia neurons, pacemaker and nonpacemaker, differences between on voltage-clamping, 512
Atrial and nodal cells of rabbit heart, voltage-time course and acetylcholine effect on, 607
Atrium, guinea pig, in normal and hypertonic media, calcium exchange and contraction strength of, 494
Axon, giant, of squid, *Loligo pealei*, effects of external potassium and long duration voltage conditioning on amplitude of sodium currents in, 589
Axons, *Myxicola*, giant, current separations in, 741
—, *Myxicola*, giant, current- and voltage-clamped studies, effect of tetrodotoxin, 730
—, *Myxicola*, giant, leak current rectification in, constant field and constant conductance components, 755
—, squid giant, influence of potassium- and sodium-free solutions on sodium efflux from, 664
—, squid, inactivation of potassium conductance and related phenomena caused by quaternary ammonium ion injection in, 553
—, squid, perfused, bathed in high potassium solutions, analysis of effects of calcium or magnesium on voltage-clamped currents in, 532

B

Bacterial membrane components, dissociation and reassociation, 27 s
— phosphotransferase system, transport of carbohydrates by, 138 s
— proteins, release, and active transport, effect of osmotic shock on, 95 s
Barnacle muscle fibers, giant, intracellular concentration and sodium activity in, 433
Biological transport, intraprotein interactions across fluid membrane as model for, 81 s
Bioluminescence, stimulable and spontaneous, in marine dinoflagellates, *Pyrodinium bahamense*, *Gonyaulax polyedra*, and *Pyrocystis lunula*, 96
Blood cells, red. *See* Erythrocytes.
Bonding, hydrogen, role in nonelectrolyte diffusion through dense artificial membranes, 369
Bull sperm flagella, energy conversion in, 782
Bullfrog tadpole, metamorphosing, stomach, ion transport and development of hydrogen ion secretion in, 76

C

Calcium exchange and contraction strength of guinea pig atrium in normal and hypertonic media, 494
— in human red cells, active transport, 713
— or magnesium, analysis of effects on voltage-clamp currents in perfused squid axons bathed in high potassium solutions, 532
— pump, cardiac sarcotubular, positive and negative inotropy in relation to depression of, 285
Carbohydrates, transport by bacterial phosphotransferase system, 138 s
Carbonic anhydrase, enzyme, dependence of oxygen-concentrating mechanism of teleost eye, *Salmo gairdneri*, on, 203
Cardiac action potential, two components, voltage-time course and acetylcholine effect on atrial and nodal cells of rabbit heart, 607
— sarcotubular calcium pump, positive and negative inotropy in relation to depression of, 285
Cardiotonic steroids, structure-activity relationships with respect to inhibition of ion transport in frog muscle, 268
Cell activities, regulation during exposure to cold, and ageing, 690
— bodies, nerve, supramedullary, puffer fish, sodium and potassium distribution in, 232
—, intracellular concentration and sodium activity in giant barnacle muscle fibers, 433
— membrane potassium ion transport and glycolysis, relationship between, effect of ethacrynic acid, 650
Cells, atrial and nodal, of rabbit heart, voltage-time course and acetylcholine effect on, 607
—, blood, red. *See* Erythrocytes.
—, single, in *Limulus* median ocellus, spectral sensitivities of, 636
—, ventral photoreceptor, *Limulus*, basic photoresponse, 310
—, ventral photoreceptor, *Limulus*, microanatomy, 289
—, ventral photoreceptor, *Limulus*, voltage-clamp study, 331
Chemical modification of active site of acetylcholine receptor, 245 s
Chloride ion and hydrogen ion fluxes in *Nitella*, localization, 397
Cold, ageing and regulation of cell activities during exposure to, 690
Conductance components, constant, and constant field, leak current rectification in *Myxicola* giant axons, 755
—, potassium, and related phenomena caused by quaternary ammonium ion injection in squid axons, inactivation of, 553
Contraction strength and calcium exchange of guinea pig atrium in normal and hypertonic media, 494
Contraction-excitation coupling, mechanical threshold as factor in, 352
Crayfish nerve, resting and stimulated, water permeability in, 462
—, *Orconectes*, dichroism of photosensitive pigment in rhabdoms, 415
Crystalline tracts, function of insect compound eyes containing, 250

D

Dichroism of photosensitive pigment in rhabdoms of crayfish *Orconectes*, 415
Dinoflagellates, marine, *Pyrodinium bahamense*, *Gonyaulax polyedra*, and *Pyrocystis lunula*, stimulable and spontaneous bioluminescence in, 96

E

Electrolyte, non-, diffusion through dense artificial membranes, role of hydrogen-bonding in, 369
Electroplax, action of antibiotics affecting membrane permeability on, 265 s
Energy conversion in bull sperm flagella, 782
Enzyme activity, microenvironmental effects on, 50 s
—, carbonic anhydrase, dependence of oxygen-concentrating mechanism of teleost eye, *Salmo gairdneri*, on, 203
Erythrocyte membranes, guinea pig, protein component of, 65 s
— membranes, sheep, inhibition of adenosine triphosphatase by oxidized glutathione in, 123
Erythrocytes, human, active transport of calcium in, 713
—, interaction between tritiated ouabain and sodium-potassium pump in, 343 s
—, rabbit, effect of ouabain and external potassium on ion transport of, 576
—, turtle, sodium transport in, apparent stimulation of exchange diffusion by anaerobiosis, 479
Escherichia coli, lactose transport system in, 91 s
Ethacrynic acid, effect on relationship between cell membrane potassium ion transport and glycolysis, 650
Excitation-contraction coupling, mechanical threshold as factor in, 352
Eye, *Limulus*, lateral, inhibitory fields in, 383
—, teleost, *Salmo gairdneri*, dependence of oxygen-concentrating mechanism on enzyme carbonic anhydrase, 203
Eyes, insect, compound, containing crystalline tracts, function, 250
—, wolf spider, spectral sensitivities, 1

F

Fiber, papillary muscle, canine, membrane characteristics, 765
Fibers, lobster muscle, ionic permeability of inhibitory postsynaptic membrane, 437
—, muscle, giant barnacle, intracellular concentration and sodium activity in, 433
Field, constant, and constant conductance components, leak current rectification in *Myxicola* giant axons, 755
Fields, inhibitory, in *Limulus* lateral eye, 383
Films, monomolecular, of monooctadecyl phosphate and stearic acid, effect of insulin and parathyroid hormone on, 134
Fish, puffer, supramedullary nerve cell bodies, sodium and potassium distribution in, 232
Flagella, bull sperm, energy conversion in, 782
Fluid membrane as model for biological transport, intraprotein interactions across, 81 s
Frog muscle, structure-activity relationships of several cardiotonic steroids with respect to inhibition of ion transport in, 268
— sartorius, transverse tubular system, fixed charge model, 178
— sartorius, transverse tubular system, swelling in, 166
— skeletal muscle, anion permeability, 33
— stomach, smooth muscle, sodium flux in, 53

G

Ganglion, heart, of stomatopod, *Squilla oratoria*, acceleratory synapses on pacemaker neurons in, 212
Glutathione, oxidized, inhibition of adenosine triphosphatase in sheep red cell membranes by, 123
Glycolysis and cell membrane potassium ion transport, relationship between, effect of ethacrynic acid, 650
Gonyaulax polyedra, *Pyrodinium bahamense*, and *Pyrocystis lunula*, marine dinoflagellates, stimulable and spontaneous bioluminescence in, 96
Guinea pig atrium in normal and hypertonic media, calcium exchange and contraction strength of, 494
— pig erythrocyte membranes, protein component of, 65 s

H

Heart ganglion of stomatopod, *Squilla oratoria*, acceleratory synapses on pacemaker neurons in, 212
— muscle, quinidine effects on, positive and negative inotropy in relation to

depression of cardiac sarcotubular calcium pump, 285
Heart, rabbit, voltage-time course and acetylcholine effect on atrial and nodal cells of, 607
Hormone, parathyroid, and insulin, effect on monomolecular films of monooctadecyl phosphate and stearic acid, 134
Hormones, polypeptide and protein, effects on lipid monolayers, 134
Hydrogen ion and chloride ion fluxes in *Nitella*, localization, 397
— ion secretion in metamorphosing bullfrog tadpole stomach, ion transport and development of, 76
Hydrogen-bonding, role in nonelectrolyte diffusion through dense artificial membranes, 369

I

Inhibition of adenosine triphosphatase in sheep red cell membranes by oxidized glutathione, 123
— of ion transport in frog muscle, structure-activity relationships of several cardiotonic steroids with respect to, 268
Inhibitory fields in *Limulus* lateral eye, 383
— postsynaptic membrane of lobster muscle fibers, ionic permeability, 437
Insect compound eyes containing crystalline tracts, function, 250
Insulin effect on sodium plus potassium-activated, ouabain-inhibited adenosine triphosphatase from rat skeletal muscle fraction, lack of, 188
— and parathyroid hormone, effect on monomolecular films of monooctadecyl phosphate and stearic acid, 134

L

Lactose transport system in *Escherichia coli*, 91 s
Letters to Editor, 285, 286, 433
Limulus lateral eye, inhibitory fields in, 383
—, median ocellus, spectral sensitivities of single cells in, 636
—, ventral photoreceptor cells, basic photoresponse, 310
—, ventral photoreceptor cells, microanatomy, 289
—, ventral photoreceptor cells, voltage-clamp study, 331
Lipid monolayers, effects of polypeptide and protein hormones on, 134
Lipids, membrane, and conformations of membrane proteins, 3 s
Liver tyrosine aminotransferase, regulation by endogenous factors in mouse, 675
Lobster muscle fibers, ionic permeability of inhibitory postsynaptic membrane, 437
Loligo pealei, giant axon, effects of external potassium and long duration voltage conditioning on amplitude of sodium currents in, 589

M

Macromolecular receptor of acetylcholine and acetylcholinesterase, structural analogies between, 225 s
Magnesium or calcium, analysis of effects on voltage-clamp currents in perfused squid axons bathed in high potassium solutions, 532
Mammalian membrane, resolution and reconstitution, 38 s
Man, red cells, active transport of calcium in, 713
Marine dinoflagellates, *Pyrodinium bahamense*, *Gonyaulax polyedra*, and *Pyrocystis lunula*, stimulable and spontaneous bioluminescence in, 96
Membrane, cell, potassium ion transport and glycolysis, relationship between, effect of ethacrynic acid, 650
— characteristics of canine papillary muscle fiber, 765
— components, bacterial, dissociation and reassociation, 27 s
—, fluid, as model for biological transport, intraprotein interactions across, 81 s
—, inhibitory postsynaptic, of lobster muscle fibers, ionic permeability, 437
— lipids and conformations of membrane proteins, 3 s
—, mammalian, resolution and reconstitution, 38 s
— permeability, action on electroplax of antibiotics affecting, 265 s
— proteins, conformations, and membrane lipids, 3 s
Membranes, artificial, dense, role of hydrogen-bonding in nonelectrolyte diffusion through, 369
—, erythrocyte, guinea pig, protein component of, 65 s

Membranes, excitable, proteins of, 187 s
—, mitochondrial inner, identification in anaerobically grown baker's yeast, 57 s
—, sheep red cell, inhibition of adenosine triphosphatase by oxidized glutathione in, 123
—, spin-labeled, 277 s
Metamorphosing bullfrog tadpole stomach, ion transport and development of hydrogen ion secretion in, 76
Microanatomy of ventral photoreceptor *Limulus* cells, 289
Microenvironmental effects on enzyme activity, 50 s
Mitochondrial inner membranes, identification in anaerobically grown baker's yeast, 57 s
Model, fixed charge, frog sartorius transverse tubular system, 178
— for biological transport, intraprotein interactions across fluid membrane as, 81 s
Molecular characterization of sodium-potassium transport adenosine triphosphatase, 327 s
—, mono-, films, of monooctadecyl phosphate and stearic acid, effect of insulin and parathyroid hormone on, 134
Monooctadecyl phosphate and stearic acid, monomolecular films of, effect of insulin and parathyroid hormone on, 134
Muscle fiber, papillary, canine, membrane characteristics, 765
— fibers, giant barnacle, intracellular concentration and sodium activity in, 433
— fibers, lobster, ionic permeability of inhibitory postsynaptic membrane, 437
— fraction, skeletal, rat, lack of insulin effect on sodium plus potassium-activated, ouabain-inhibited adenosine triphosphatase from, 188
—, frog, structure-activity relationships of several cardiotonic steroids with respect to inhibition of ion transport in, 268
—, heart, quinidine effects on, positive and negative inotropy in relation to depression of cardiac sarcotubular calcium pump, 285
—, skeletal, frog, anion permeability, 33
—, smooth, frog stomach, sodium flux in, 53
—, uterine smooth, voltage-clamp studies on, 145
Myxicola giant axons, current separations in, 741
— giant axons, current- and voltage-clamped studies, effect of tetrodotoxin, 730
— giant axons, leak current rectification in, constant field and constant conductance components, 755

N

Nerve cell bodies, supramedullary, puffer fish, sodium and potassium distribution in, 232
—, crayfish, resting and stimulated, water permeability in, 462
Neurons, *Aplysia*, pacemaker and nonpacemaker, differences between on voltage clamping, 512
—, pacemaker, in heart ganglion of stomatopod, *Squilla oratoria*, acceleratory synapses on, 212
Nitella, localization of hydrogen ion and chloride ion fluxes in, 397
Nodal and atrial cells of rabbit heart, voltage-time course and acetylcholine effect on, 607

O

Ocellus, median, *Limulus*, spectral sensitivities of single cells in, 636
Octadecyl, mono-, phosphate and stearic acid, monomolecular films of, effect of insulin and parathyroid hormone on, 134
Orconectes, dichroism of photosensitive pigment in rhabdoms, 415
Osmotic shock, effect on release of bacterial proteins and on active transport, 95 s
Ouabain and external potassium, effect on ion transport of rabbit red cells, 576
—, tritiated, and sodium-potassium pump, in red blood cells, interaction between, 343 s
Ouabain-inhibited, potassium-activated plus sodium adenosine triphosphatase from rat skeletal muscle fraction, lack of insulin effect on, 188
Oxidized glutathione, inhibition of adenosine triphosphatase in sheep red cell membranes by, 123
Oxygen, sulfur, and selenium compounds, isologous, as probes of acetylcholine receptors, 271 s

Oxygen-concentrating mechanism of teleost eye, *Salmo gairdneri*, dependence on enzyme carbonic anhydrase, 203

P

Papillary muscle fiber, canine, membrane characteristics, 765
Parathyroid hormone and insulin, effect on monomolecular films of monooctadecyl phosphate and stearic acid, 134
Perfused squid axons bathed in high potassium solutions, analysis of effects of calcium or magnesium on voltage-clamped currents in, 532
Permeability, anion, of frog skeletal muscle, 33
—, ionic, of inhibitory postsynaptic membrane of lobster muscle fibers, 437
—, membrane, action on electroplax of antibiotics affecting, 265 s
—, water, in resting and stimulated crayfish nerve, 462
Phosphotransferase system, bacterial, transport of carbohydrates by, 138 s
Photoreceptor cells, ventral, *Limulus*, basic photoresponse, 310
— cells, ventral, *Limulus*, microanatomy, 289
— cells, ventral, *Limulus*, voltage-clamp study, 331
Photoresponse, basic, of ventral photoreceptor *Limulus* cells, 310
Photosensitive pigment in rhabdoms of crayfish *Orconectes*, dichroism of, 415
Pigment, photosensitive, in rhabdoms of crayfish *Orconectes*, dichroism of, 415
Polypeptide and protein hormones, effects on lipid monolayers, 134
Postsynaptic membrane, inhibitory, of lobster muscle fibers, ionic permeability, 437
Potassium conductance and related phenomena caused by quaternary ammonium ion injection in squid axons, inactivation of, 553
—, external, and long duration voltage conditioning, effects on amplitude of sodium currents in giant axons of squid, *Loligo pealei*, 589
—, external, and ouabain, effect on ion transport of rabbit red cells, 576
— ion transport, cell membrane, and glycolysis, relationship between, effect of ethacrynic acid, 650
Potassium and sodium distribution in puffer fish supramedullary nerve cell bodies, 232
— solutions, high, analysis of effects of calcium or magnesium on voltage-clamped currents in perfused squid axons bathed in, 532
Potassium-activated plus sodium, ouabain-inhibited adenosine triphosphatase from rat skeletal muscle fraction, lack of insulin effect on, 188
Potassium- and sodium-free solutions, influence on sodium efflux from squid giant axons, 664
Potassium-sodium pump and tritiated ouabain, in red blood cells, interaction between, 343 s
— transport adenosine triphosphatase, molecular characterization, 327 s
Potassium-sodium–dependent adenosine triphosphatase, flexibility of active center in, 306 s
Probes of acetylcholine receptors, isologous oxygen, sulfur, and selenium compounds as, 271 s
Protein component of guinea pig erythrocyte membranes, 65 s
— interactions, intra-, across fluid membrane as model for biological transport, 81 s
— and polypeptide hormones, effects on lipid monolayers, 134
Proteins, bacterial, release, and active transport, effect of osmotic shock on, 95 s
—, binding, with possible transport function, from animals, 114 s
—, membrane, conformations, and membrane lipids, 3 s
— of excitable membranes, 187 s
Puffer fish supramedullary nerve cell bodies, sodium and potassium distribution in, 232
Pump, calcium, cardiac sarcotubular, positive and negative inotropy in relation to depression of, 285
—, sodium-potassium, and tritiated ouabain, interaction between in red blood cells, 343 s
Pyrocystis lunula, *Pyrodinium bahamense*, and *Gonyaulax polyedra*, marine dinoflagellates, stimulable and spontaneous bioluminescence in, 96

Pyrodinium bahamense, *Gonyaulax polyedra*, and *Pyrocystis lunula*, marine dinoflagellates, stimulable and spontaneous bioluminescence in, 96

Q

Quaternary ammonium ion injection in squid axons, inactivation of potassium conductance and related phenomena caused by, 553
Quinidine effects on heart muscle, positive and negative inotropy in relation to depression of cardiac sarcotubular calcium pump, 285
—, positive and negative inotropic effects of, 286

R

Rhabdoms of crayfish *Orconectes*, dichroism of photosensitive pigment in, 415

S

Salmo gairdneri eye, dependence of oxygen-concentrating mechanism on enzyme carbonic anhydrase, 203
Sarcotubular calcium pump, cardiac, positive and negative inotropy in relation to depression of, 285
Sartorius, frog, transverse tubular system, fixed charge model, 178
—, frog, transverse tubular system, swelling in, 166
Secretion, hydrogen ion, development, and ion transport in metamorphosing bullfrog tadpole stomach, 76
Selenium, oxygen, and sulfur compounds, isologous, as probes of acetylcholine receptors, 271 s
Sensitivities, spectral, of single cells in *Limulus* median ocellus, 636
—, spectral, of wolf spider eyes, 1
Sheep red cell membranes, inhibition of adenosine triphosphatase by oxidized glutathione in, 123
Shock, osmotic, effect on release of bacterial proteins and on active transport, 95 s
Skeletal muscle fraction, lack of insulin effect on sodium plus potassium-activated, ouabain-inhibited adenosine triphosphatase from, 188
— muscle, frog, anion permeability, 33
Sodium activity and intracellular concentration in giant barnacle muscle fibers, 433
Sodium currents, amplitude, in giant axon of squid, *Loligo pealei*, effects of external potassium and long duration voltage conditioning on, 589
— efflux from squid giant axons, influence of potassium- and sodium-free solutions on, 664
— flux in frog stomach smooth muscle, 53
— plus potassium-activated, ouabain-inhibited adenosine triphosphatase from rat skeletal muscle fraction, lack of insulin effect on, 188
— and potassium distribution in puffer fish supramedullary nerve cell bodies, 232
— and potassium-free solutions, influence on sodium efflux from squid giant axons, 664
— pump and tritiated ouabain, in red blood cells, interaction between, 343 s
— transport, adenosine triphosphatase, molecular characterization, 327 s
— transport in turtle erythrocytes, apparent stimulation of exchange diffusion by anaerobiosis, 479
Sodium-potassium–dependent adenosine triphosphatase, flexibility of active center in, 306 s
Spectral sensitivities of single cells in *Limulus* median ocellus, 636
— sensitivities of wolf spider eyes, 1
Sperm flagella, bull, energy conversion in, 782
Spider eyes, wolf, spectral sensitivities, 1
Spin-labeled membranes, 277 s
Squid axons, inactivation of potassium conductance and related phenomena caused by quaternary ammonium ion injection in, 553
— axons, perfused, bathed in high potassium solutions, analysis of effects of calcium or magnesium on voltage-clamped currents in, 532
— giant axons, influence of potassium- and sodium-free solutions on sodium efflux from, 664
—, *Loligo pealei*, giant axon, effects of external potassium and long duration voltage conditioning on amplitude of sodium currents in, 589
Squilla oratoria, acceleratory synapses on pacemaker neurons in heart ganglion of, 212

Stearic acid and monooctadecyl phosphate, monomolecular films of, effect of insulin and parathyroid hormone on, 134
Steroids, cardiotonic, structure-activity relationships with respect to inhibition of ion transport in frog muscle, 268
Stomach, frog, smooth muscle, sodium flux in, 53
— of metamorphosing bullfrog tadpole, ion transport and development of hydrogen ion secretion in, 76
Stomatopod, *Squilla oratoria*, acceleratory synapses on pacemaker neurons in heart ganglion of, 212
Sulfur, oxygen, and selenium compounds, isologous, as probes of acetylcholine receptors, 271 s
Supramedullary nerve cell bodies, puffer fish, sodium and potassium distribution in, 232
Synapses, acceleratory, on pacemaker neurons in heart ganglion of stomatopod, *Squilla oratoria*, 212

T

Tadpole, bullfrog, metamorphosing, stomach, ion transport and development of hydrogen ion secretion in, 76
Teleost eye, *Salmo gairdneri*, dependence of oxygen-concentrating mechanism on enzyme carbonic anhydrase, 203
Tetrodotoxin effect on *Myxicola* giant axons, current- and voltage-clamped studies, 730
Triphosphatase, adenosine, in sheep red cell membranes, inhibition by oxidized glutathione, 123
—, adenosine, sodium plus potassium-activated, ouabain-inhibited, from rat skeletal muscle fraction, lack of insulin effect on, 188
—, adenosine, sodium-potassium–dependent, flexibility of active center in, 306 s
—, adenosine, sodium-potassium transport, molecular characterization, 327 s
— system, adenosine, transport, affinities or apparent affinities of, 289 s
Tritiated ouabain and sodium-potassium pump in red blood cells, interaction between, 343 s
Tubular system, transverse, frog sartorius, fixed charge model, 178
— system, transverse, swelling in frog sartorius, 166
Turtle erythrocytes, sodium transport in, apparent stimulation of exchange diffusion by anaerobiosis, 479
Tyrosine aminotransferase, liver, regulation by endogenous factors in mouse, 675

U

Uterine smooth muscle, voltage-clamp studies on, 145

V

Voltage conditioning, long duration, and external potassium, effects on amplitude of sodium currents in giant axon of squid, *Loligo pealei*, 589
Voltage-clamp currents in perfused squid axons bathed in high potassium solutions, analysis of effects of calcium or magnesium on, 532
— studies on uterine smooth muscle, 145
— study of ventral photoreceptor, *Limulus* cells, 331
Voltage- and current-clamped studies on *Myxicola* giant axons, effect of tetrodotoxin, 730
Voltage-clamping, differences between pacemaker and nonpacemaker *Aplysia* neurons on, 512
Voltage-time course and acetylcholine effect on atrial and nodal cells of rabbit heart, 607

W

Water permeability in resting and stimulated crayfish nerve, 462

Y

Yeast, baker's, anaerobically grown, identification of mitochondrial inner membranes in, 57 s